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(54) Plant container for cladding a vertical surface

(57) A plant container (2) for use in cladding a vertical surface (4), which plant container (2) comprises plant compartments (6) which are arranged vertically one on top of another, and fixing means (8) for fixing the plant container (2) to the vertical surface (4). Soil-retaining flanges 16 and perforated screen 18 may be provided. Irrigation may be by perforated pipe 22.

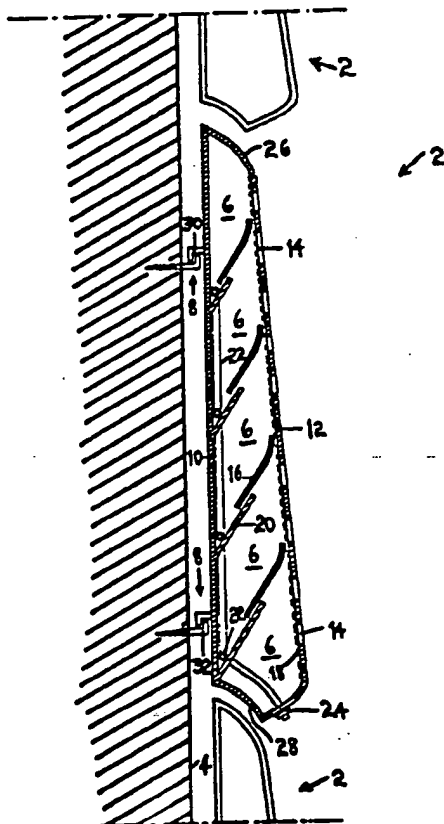


FIG 1

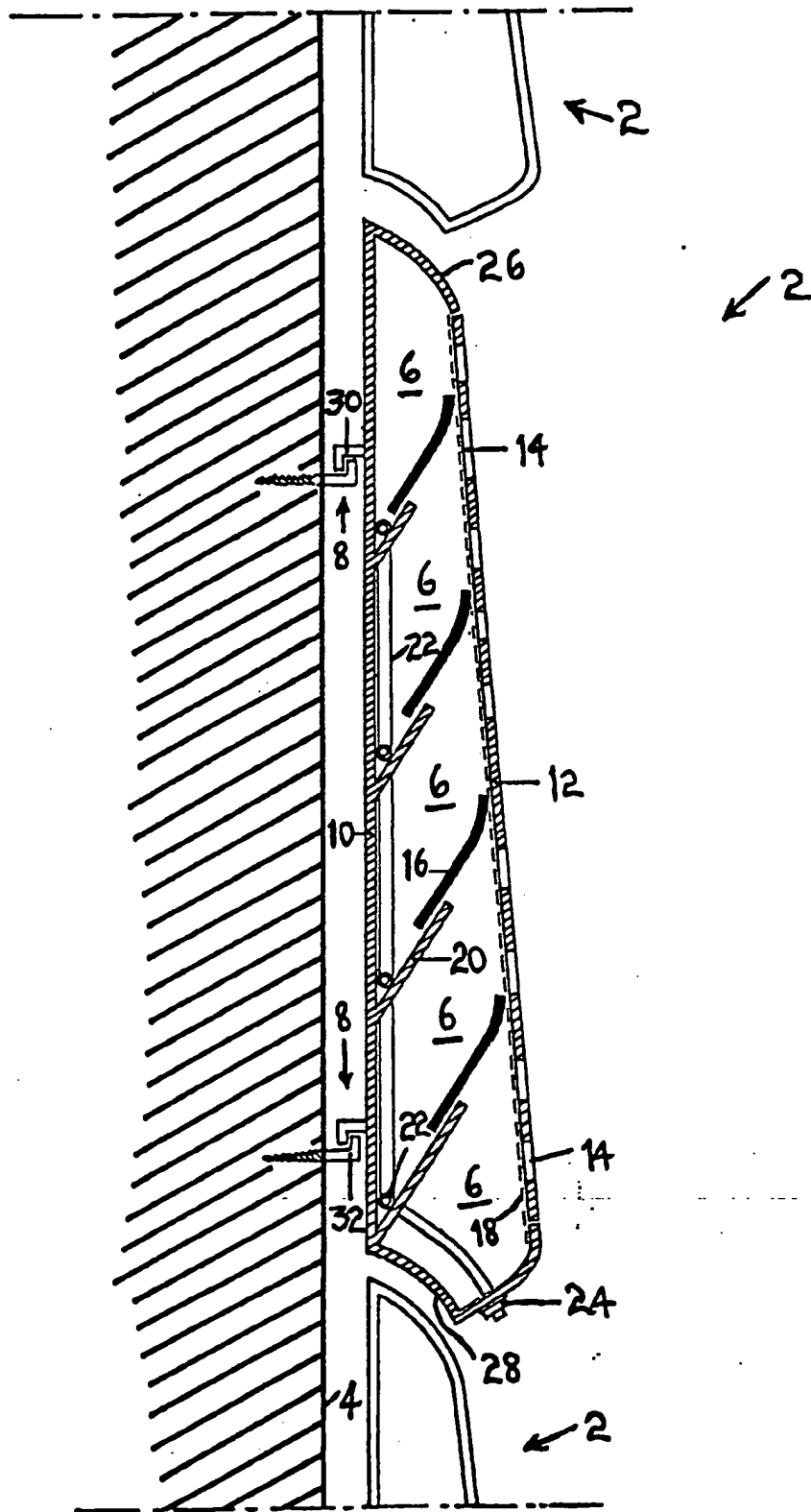
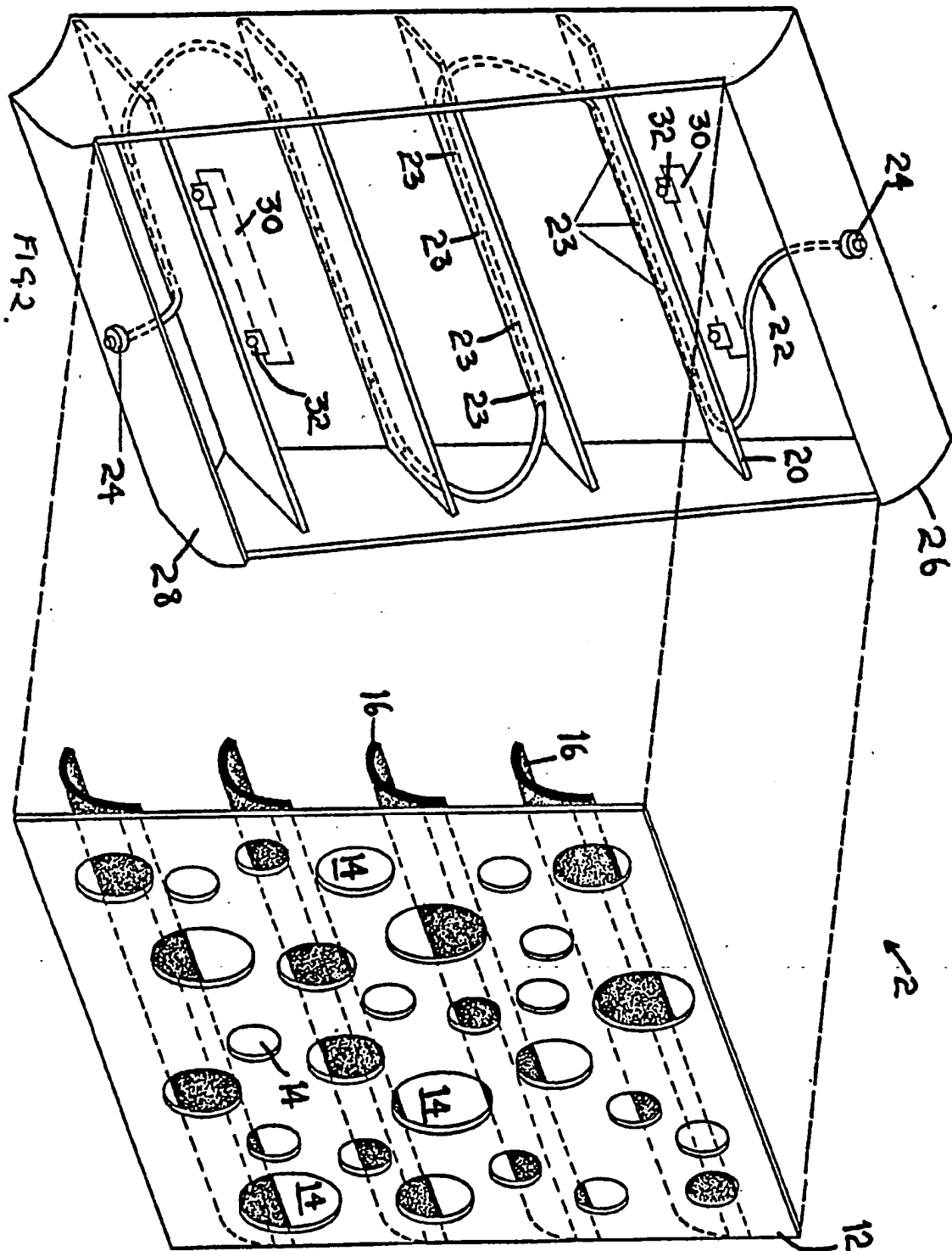


FIG1





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A PLANT CONTAINER FOR USE IN CLADDINGA VERTICAL SURFACE

This invention relates to a plant container for use in cladding a vertical surface.

Vertical surfaces such for example as the walls of buildings or other structures are often not aesthetically pleasing. Especially in towns and cities, plant life is rare and concrete walls of buildings tend to abound. Not only are the bare surfaces of walls of buildings often aesthetically unsatisfactory, but they also tend to reflect the noise of machines and of people.

It is an aim of the present invention to reduce the above mentioned problem.

Accordingly, this invention provides a plant container for use in cladding a vertical surface, which plant container comprises plant compartments which are arranged vertically one on top of another, and fixing means for fixing the plant container to the vertical surface.

Plant containers in accordance with the present invention can be provided over large areas of the walls of buildings or other vertical surfaces to give the walls or other vertical surfaces a pleasant appearance. Thus towns and cities can be transformed into more pleasant areas than they are at present.

The plant container may have a rear wall and a front wall, the front wall having apertures through which plants in the plant compartments can grow. The apertures may be regularly spaced or randomly spaced, depending upon desired aesthetic effects. The apertures may be of the same or different sizes, as may be desired, for example for different aesthetic effects.

Preferably, the front wall has soil retaining flanges for retaining soil in the plant compartments. Preferably, the soil retaining flanges are curved. Other types of soil retaining flanges may however be employed.

Preferably, a side wall of the plant container is removable to allow for ease of filling of soil retaining flanges.

The soil employed in the plant container may be any growing medium including inert water and nutrient-retaining substances that are not easily leached. The growing medium may be loaded loose, or it may be loaded in plastics bags. The plastics bags may have holes made in them for receiving the plants.

The front wall may have a perforated screen for retaining soil in the plant compartments. Alternatively, the front wall may have external cups around each of the apertures. Where a perforated screen is employed, the perforated screen is preferably made of a plastics material but other materials may be employed if desired.

Preferably, each plant compartment has an upwardly

inclined base. The upwardly inclined base may form with the rear wall an irrigation channel.

The plant container may include irrigation means.

5           The irrigation means may be external irrigation means. Such irrigation means may include a tube to which water is supplied from an external source. Alternatively, for ease of access, the external irrigation means may incorporate a tank having refilling means such for  
10           example as an openable lid.

          The irrigation means may comprise an irrigation tube which passes from plant compartment to plant compartment. The irrigation tube may be perforated along each part of its length that passes through each of the  
15           plant compartments. Alternatively, separate tubes may go to each irrigation channel, or separate tubes may come via T-junctions from a lateral vertical pipe running from top to bottom of each arrangement of plant containers.

20           Irrigation can be effected by a pump or by gravity feed from a tank on a roof. The irrigation may use rain water, non-toxic waste water, or existing guttering systems for the capture and disposal of water. The plastics bags may have holes made in them for receiving  
25           the irrigation tubes.

          The value of vertical plant-covered surfaces for increasing air humidity and stabilising water retention and controlled evaporation of moisture in city environments is evident.

The irrigation means may have connectors at each end for enabling the irrigation means in one plant container to be connected to the irrigation means in another plant container. Thus an entire surface can be provided with the plant containers in the form of modular units which can then be linked up with a single irrigation means. Preferably, the connectors are snap-on connectors.

Humidity may be monitored electronically to activate pumping, or a daily or more frequent timer may activate pumping automatically.

Any suitable and appropriate type of fixing means may be employed for fixing the plant containers to the vertical surface. Thus, for example, the fixing means may be hook type devices, screws or expanding bolts. Preferably the fixing means is such that the plant containers can easily be removed from the vertical surface if desired. Fixing means in the form of clips may advantageously be employed for enabling the plant containers easily to be connected and disconnected from the vertical surface. If desired, the plant containers can be used for cladding surfaces other than vertical surfaces so that, for example, the plant containers can



be used for cladding sloping surfaces.

5           The plant containers may be made from any  
desired and appropriate materials. Plastics or  
aluminium materials are presently preferred since  
such materials are substantially rot proof and they  
are also light in weight. Other materials such as  
concrete-type materials may be employed if considerations  
of weight are not of paramount importance. Paint or  
other covering material that is resistant to ultra-  
10   violet light may be used in order to avoid degradation  
of plastics materials.

15           Usually, the plant containers will be for use  
in cladding vertical surfaces forming the outside of  
buildings and similar structures. For example, the plant  
containers may be used on terraces or in gardens where  
vertical surfaces are available. If desired however the  
plant containers can be used in cladding internal  
surfaces such for example as internal walls in office  
buildings.

20           An embodiment of the invention will now be  
described solely by way of example and with reference  
to the accompanying drawings in which:

Figure 1 is a side view of a plant container for use in cladding a vertical surface;

Figure 2 is an exploded view of the plant container shown in Figure 1; and

5           Figure 3 shows a vertical surface in the form of part of a wall of a house provided with some of the plant containers shown in Figure 1.

Referring to Figures 1 and 2, there is shown a plant container 2 for use in cladding a vertical surface  
10       4. The plant container 2 comprises plant compartments 6 which are arranged vertically one on top of another. The plant container 2 also comprises fixing means 8 for fixing the plant container 2 to the vertical surface 4.

The plant container 2 has a rear wall 10 and a  
15       front wall 12. The front wall 12 has apertures 14 through which plants (not shown) in the plant compartments 6 can grow. The front wall also has soil retaining flanges 16 for retaining soil (not shown) in the plant compartments 6. The soil retaining flanges 16 are slightly curved at their

upper ends as shown.

The front wall 12 has a perforated screen 18 for retaining soil in the plant compartments 6. The perforated screen is made of a plastics material and it fits along the inside surface of the front wall 12 as can be seen from Figure 1.

Each plant compartment 6 has an upwardly inclined base 20. The soil retaining flanges 16 overlap the free ends of the bases 20 as shown.

The lowest part of each plant compartment 6 is formed where each one of the bases 20 joins the rear wall 10. In this part of each compartment there is placed irrigation means in the form of an irrigation tube 22. The irrigation tube 22 passes from plant compartment 6 to plant compartment 6 as shown. The irrigation tube 22 has holes 23 along each part of its length that passes through the lowest point of each of the plant compartments 6. Alternatively, separate tubes may go to each irrigation channel, or may come via T-junctions from a lateral vertical pipe running from top to bottom of each arrangement of plant containers 2.

The irrigation tube 22 has a snap-on connector 24 at each of its ends. This enables the irrigation tube 22 in one plant container 2 to be connected to another irrigation tube 22 in another plant container 2. Thus a

plurality of separate plant containers can be connected together in modular form to have a single irrigation means. Plant nutrients are preferably added to the water supply.

5           As can be seen from Figure 2, the rear wall 10 has an upper curved portion 26 and a lower curved portion 28. This enables the plant containers 2 to fit one on top of each other as shown in Figure 1 and when the plant containers 2 are viewed from the front, horizontal gaps are not visible between the plant  
10           containers.

          The fixing means 8 comprises a hook shaped flange 30 which, as shown in Figure 2 extends over the middle distance of the rear wall 10. The flange 30 is  
15           then able to hook over a pair of wall bolts 32 which are provided with a complementary flanged end as can best be seen from Figure 1. The fixing means 8 is provided at the top portion and the bottom portion of the rear wall 10 as shown in Figures 1 and 2, so that the plant  
20           container 2 is securely mounted on the vertical surface 4 and will not become dislodged in high wind. Nevertheless, the fixing means 8 is such that the plant container 2 can easily be removed from the vertical surface 4, for example for ease of maintenance or changing the plants in the  
25           plant compartments 6.

The soil retaining flanges 16 are preferably stiff but flexible plastics or rubber flanges. They may then initially be curved as shown in Figure 2 but they will become straighter as shown in Figure 1 when  
5 soil is in the plant compartments 6 and is leaning on the soil retaining flanges 16.

Referring now to Figure 3, there is shown four plant containers 2 mounted one above each other on a vertical surface 4 which in fact is the wall of  
10 a house 34. Plants 36 can be seen growing through the apertures 14. The plant containers 2 encourage wildlife such for example as birds 38 and insects 40 to frequent the plant containers 2. Thus, not only do the plant  
containers 2 make the wall of the house 34 look much more  
15 pleasing, but they also encourage wildlife which again helps to take away the starkness of bare walls found in towns and cities.

Preferably, the vertical surface 4 when it forms the wall of a house, an office or a factory is damp-proofed  
20 so that water from the irrigation tube 22 will not cause the wall to become unduly damp.

It is to be appreciated that the embodiment of the invention described above with reference to the accompanying drawings has been given by way of example only  
25 and that modifications may be effected. Thus, for example, the plant containers 2 are preferably made of a plastics

material but they may be made of other materials  
such for example as concrete, fibreglass or aluminium  
alloy, and perhaps eventually light inert materials  
such as carbon fibre panelling. The vertical surface  
5 4 may be clad with plant containers 2 of different  
shapes and sizes if desired. Such plant containers 2  
will however generally fit together in a modular fashion.  
If desired, the vertical surface 4 could be inclined to  
the horizontal but not completely vertical. In such a  
10 case, biologically contaminated waste water could be  
allowed to trickle down the surface 4 and be purified  
as it passed through the various plant compartments 6.  
Other types of fixing means 8 to those shown in the  
drawings may be employed. The soil for the plant  
15 containers may be loaded in plastics bags or sacks, and  
these plastics bags or sacks may be provided with holes  
for receiving plants and/or water irrigation tubes.

The containers 2 may be sold under the trade  
mark ECOCLADDING.

CLAIMS

1. A plant container for use in cladding a vertical surface, which plant container comprises plant compartments which are arranged vertically one on top of another, and fixing means for fixing the plant container to the vertical surface.  
5
2. A plant container according to claim 1 and comprising a rear wall and a front wall, the front wall having apertures through which plants in the plant compartments can grow.
- 10 3. A plant container according to claim 2 in which the front wall has soil retaining flanges for retaining soil in the plant compartments.
4. A plant container according to claim 3 in which the soil retaining flanges are curved.
- 15 5. A plant container according to any one of claims 2, 3 or 4 in which the front wall has a perforated screen for retaining soil in the plant compartments.

6. A plant container according to any of claims 2, 3 or 4 in which the front wall has external cups around each one of the apertures for retaining soil.

5 7. A plant container according to any one of the preceding claims in which each plant compartment has an upwardly inclined base.

8. A plant container according to claim 7 in which the upwardly inclined base forms with the rear wall  
10 an irrigation channel.

9. A plant container according to any one of the preceding claims and including irrigation means.

10. A plant container according to claim 9 in which the irrigation means comprises an irrigation tube  
15 which passes from plant compartment to plant compartment.

11. A plant container according to claim 10 in which the irrigation tube is perforated along each part of its length that passes through each of the plant compartments.



12. A plant container according to claim 10 or claim 11 in which the irrigation tube extends in a vertical direction.

5 13. A plant container according to any one of claims 9 to 12 in which the irrigation means has connectors at each end for enabling the irrigation means in one plant container to be connected to the irrigation means in another plant container.

10 14. A plant container according to claim 13 in which the connectors are snap-on connectors.

15. A plant container according to any one of the preceding claims in which the fixing means are hook-type devices, screws, expanding bolts or clips.

15 16. A plant container according to any one of the preceding claims in which the fixing means is such that the plant container is removably fixed in position.

17. A plant container according to any one of the preceding claims and which is made from a plastics material or an aluminium material.

18. A plant container for use in cladding a vertical surface, substantially as herein described with reference to the accompanying drawings.